Institutional Challenges to Collaborative Governance on Disaster Risk Reduction: The Case of Marikina River and Watershed

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Abstract - *One of the key challenges in Philippine development is the desire among local government units to engage in collaborative arrangements on the management of common resources in the context of disaster risk and reduction. To add, certain constraints indicated in Philippine policies and laws like the Local Government Code of 1991 contribute in bridging the relationship between the local government entities. In LGC, the local autonomy specified the significance of spatial boundary, financial resource management delimitation and political subdivision in the desire to cooperate in administration of overlapping resources. Understanding the fact that disasters recognize no boundaries, the environmental sustainability of common pool resources is now at stake. The study puts into consideration the case of Marikina Watershed and Marikina River. It highlights the experiences of some local government units in managing the environmental degradation and absence of effective governance of the river and watershed. The paper utilized qualitative approach and descriptive research design. The study found out that the management of common resources like the Marikina river and watershed in the context of mitigating disasters required the collaboration of nearby local government units and stakeholders.*

Keywords – *collaborative governance, common pool resources, disaster risk reduction and management, Marikina watershed and river*

INTRODUCTION

In 2010, the Philippine Disaster Risk Reduction and Management (PDRRM) were enacted into a law as Republic Act No. 10121 (RA 10121) [1]. The law mandates the creation of an office in Local Government Units that will specifically handle the needs in the four thematic areas of PDRRM frameworks on; (1) prevention and mitigation, (2) emergency preparedness and risk reduction, (3) emergency response, and (4) rehabilitation and recovery. The aim of the law is to empower the LGUs as a forefront of services by the government in dealing disaster situations. The law also strengthen and supplement the LGUs organizational capacity and human resource capabilities in realization to their mandates prescribed by the Local Government Code of 1991 [2]. Under Republic Act No 10121 [1] the LGUs are heighten to cooperate and foster Inter-local government unit collaboration in dealing environmental issues and disaster risk concerns. However, collaborative governance in managing common pool resources is challenging considering the constraints encompasses the Local Government Code of 1991. In which, LGC [2] emphasizes the devolution and local autonomy of LGUs for spatial boundary, budget allocation, political subdivision, social services and resources. Moreover, understanding the facts that disasters recognize no boundaries, the environmental sustainability of common pool resources is now at stake.

In this paper, it is intended to examine how collaborative governance of LGUs are place into practice in managing Marikina Watershed and Marikina River as an example of common pool resource. Marikina Watershed and Marikina River connects cities and municipalities in Metro Manila and Province of Rizal and it is to believe to be the cause of flooding during typhoon Ondoy and the succeeding Low Pressure Area cascades in the low lying areas of Metro Manila. As a result, places in the Metropolitan Areas traverses by the water from Marikina Watershed and Marikina River are declared susceptible in the impacts of disasters.

Background of the study

The Marikina Watershed is a River Basin Protected Landscape with an area containing 26,125.64 hectares situated in the City of Antipolo

and Municipalities of Baras, Rodriquez, San Mateo and Tanay, in Province of Rizal is declared as protected areas by virtue of Proclamation No. 296 in 2011 [3] pursuant to Republic Act No. 7586 (RA 7586) of 1992 [4]. Hence the water and resources of river basin traverses down is called Marikina River which is extended to the Municipality of Cainta in Rizal, Cities of Pasig, Marikina, and Quezon City in Metro Manila. In the study of Tuaño and Sescon [5], it is said that the natural geographical feature of the watershed can provide a potential contribution to human development outcomes of the population within the reach of its effects to the environment.

In 2010, the Environmental Science for Social Change (ESSC) [7] released a report based on assessment in the status of Marikina Watershed and Marikina River after the flooding brought by Typhoons Ondoy, Pepeng and Low Pressure Area (LPA). The report pointed out that flooding is an aggregate result manifested from failed conservation of environmental resources. The report said that low lying areas along Marikina River banks are exposed in high risk due to individual developments, low cost housing, and informal settler areas built from San Mateo, Rizal down up to Quezon City. There are also reports of quarrying activities, dredging of gravel and sand upstream Wawa River in Montalban that is considered as primary culprit for environmental degradation that added into the cascades of flash floods. As a result, the aftermath of typhoon in 2009 rampage Metro Manila and its neighbouring provinces from floodwaters brought by typhoon Ondoy dumped 341mm of rainfall [8]. The total amount in 24 hours reached 455mm [9]. In all, about 800 people died, 400,000 people were displaced, and PhP17 billion worth of infrastructure and agriculture were damaged [8]. Marikina City, Cainta, Pasig City, and the towns ringing Laguna Lake were devastated and submerged in 10 feet of water and tons of knee-deep mud and sludge.

The Quezon City as an example is considered to be in low lying part of Marikina Watershed being the tail end. Four barangays lay within the area of Marikina river basin, the Bagong Silangan, Payatas, Pansol and Balara with combined population of fifty thousand. The places are considered high risk because of threats in flooding and earthquake. During typhoon Ondoy, almost two hundred (200) people died in the areas. At present, the status of these barangays is highly populated with informal settlers and some are living near the basin. Partly, these people contribute in the pollution of river basin. Although, plan for relocation is in place but most of them refused to relocate for various reason. Also, there are boundary disputes in the barangays Balara and Pansol together with Marikina. In managing common pool resources like the Marikina River basin and Marikina River, the spatial boundary is a major constraint due to existing boundary disputes and the informal settlers living in the boundary disputed voting into other LGU (vice versa).

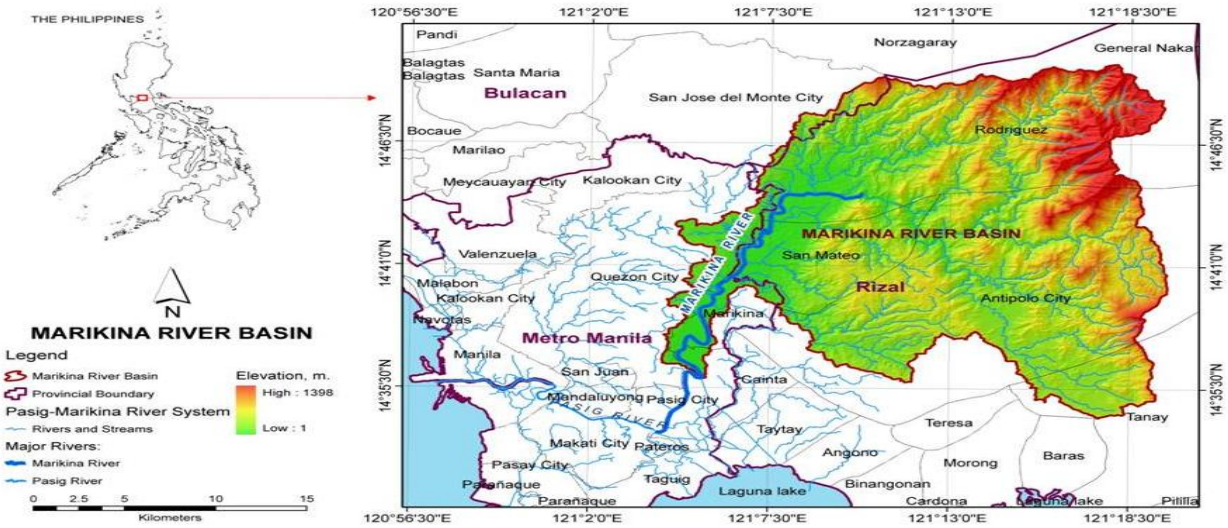

Figure 1. Geographical Map of Marikina River Basin and Marikina River
Source: http://dge.upd.edu.ph/proj3/wp-content/uploads/2013/08/projectarea.jpg [6]

The Antipolo City situated in high part of Marikina Watershed but never became an escape in the effects of typhoon Ondoy that suffer the same situation of flooding. In the perspective of Antipolo City, collaboration with other LGUs is both a conscience and necessity to cooperate. Conscience, undeniably the city also contributes to the deterioration of forestry and watershed. Necessity, because it also a preventive aspect to reduce the risk and threats than can affect the city. The view of Antipolo, in planning perspectives, the aftermath of disaster requires a river basin approach that everyone are intra-related and anyone can contribute to alleviate potential threats [10]. Antipolo City place three barangays that locates the watershed, San Juan, San Jose and Calawis. Prior to typhoon Ondoy, the city created a Forest Land Use Plan (FLUP) 2007-2012 that rationalized development initiatives and serves as guidance in the management and usage of the basin. In Antipolo, the Marikina watershed has no total development to prevent encroachment in the place. In which, the structural plan of the city is geared toward equal distribution from western to eastern portion. The portion of Watershed is considered as regulated development to prevent degradation as co-manage by the city ad DENR. The City Environmental Office administered and monitor any development and activities in the watershed. In fact, there is no development being allowed except the tenural instrument issued in all of the people living in the area subject on a certain condition like, in twenty five years, they are allowed to live in the place to take care of the land but they are not allowed to build permanent structure that is harmful to the ecosystem and environment. Socio demographic database are determine to prevent informal settlers in the vicinity of watershed [10].

Relevant Literature and Framework

In development perspectives, no one will forget the Hardin's tragedy of commons, which popularized how individual act independently based on self interest without considering the effects of action that will affect the common resource. Neither related nor not, Mancur Olson [11] popularized a theory of collective action in 1965 highlighted that common interest is regulated by self-interest in fostering collective action. He explored conditions under which cooperation might emerge – the work became powerful and influential [12]. The hindsight, even individual shared goal they are unlikely to cooperate voluntarily in achieving that goal. The theory of Olson [11] in an overarching message stated that, *"unless the number of individuals in a group is quite small, or unless there is coercion or some other special device to make individuals act in their common interest, rational, self interested individuals will not act to achieve their common or group interest"*.

Meanwhile, Elinor Ostrom [13] argued that in attempting to resolve common-pool resources dilemmas, appropriators must work through three closely related issues [12] – supply, commitment, and monitoring [13]. The dilemmas in common pool resources like the Marikina Watershed and Marikina River is when concern LGUs does not coordinate their actions. The supply of rules that govern the management of common pool resources are needed to institutionalize and agreed upon by the concerning LGUs. Coincide in the powerful theory of Olson and might be due to boundary constraints, legal delimitation and political subdivisions each of LGUs has. In which, institutional arrangement are wildly suggested to make collaborative governance in handling common pool resources working and possible. Following this logic, "the task of commons projects is to craft the common pool resources (CPR) design principles into locally suited rules to build or link into norms (what is permitted and what is not) of compliance and cooperation in order to meet desired resource conservation objectives" [14]. The theoretical principle in *Table1* shows the theory of enduring common institutions that will be corroborated in the theory of collective action by Olson. The purpose is to establish the veracity of collaborative governance managing common pool resources for disaster risk reduction.

In CPR theory, and by means of collaborative governance mechanism, the management of Marikina Watershed and Marikina River pertains to "the creation of conditions to support collective action to generate social learning and institutional evolution, largely revolve around the creation of trust" [14]. The trust will be given in the collaboration serves as the commitment of each partner part of the linkages. "There are at least three fundamental reasons why CPR theorists believe that building of trust and cooperation is more likely in small and isolated commons settings: (1) when people are few it is more conducive for individuals to reveal and signal their intended plans of action and to learn about others' intentions; (2) because of the usual presence of social ostracization mechanisms and (3) presence of a collective identity or closely shared roles" [14; 15; 16]. In Ostrom's [13] concept of cooperative action

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among stakeholders, there are 8 principles identified. It include: a "clearly defined boundaries; congruence between appropriation and provision rules and local conditions; collective choice arrangements; monitors are accountable to the resource users; graduated sanctions against violators; ready access to conflict-resolution mechanisms; recognition of rights to organize and nested enterprises" [13].

The absence of mechanism to monitor the common pool resources resulted from environmental degradation that in effect worsens the disaster situation. Monitoring in itself regulated the rules as part of efficient and effective governance. The monitoring tracks the commitment of collaboration among and between LGUs managing the common pool resources.

METHODS

The study is qualitative in design using descriptive methods. The study utilized key informant interviews with LGUs concerning with the management of Marikina Watershed and Marikina River. The respondents of the study include key stakeholders from Local Government Units along the stretch of Marikina river and watershed. Specifically, disaster related officers from the Local Disaster Risk Reduction and Management Office (LDRRMO) of Antipolo, Pasig, Quezon City and Marikina were interviewed. The informants from these LGUs were asked on the specific projects and programs they undertaken in collaboration fellow LGUs that govern the common pool resources for disaster risk reduction and management. Furthermore, to validate the result of interviews, documentary analysis was conducted on relevant literature and documentary reports on the governance of the Marikina watershed were obtained in respective LGUs are done to establish the validity and reliability on collaborative governance used in managing the common pool resources.

Collaborative Governance Mechanism

"Coming together is a beginning; keeping together is progress; working together is success" (Henry Ford, 1863-1947)

The aftermath of typhoons Ondoy and Pepeng are a wake-up call for local government that disasters especially the flooding cause by the overflows from Marikina Watershed and Marikina River is beyond territorial boundaries and therefore require inter-local cooperation and partnership among local government units [17]. The importance of recognizing the need to collectively work together for improved coordination, pool and share knowledge and resources is very important in disaster risk reduction and management. Thus, the Protected Area Management Board (PAMB) and Alliance of Seven was created and institutionalized as forms of collaborative governance mechanism that manage the common pool resources. Mancur Olson emphasized that the individual interest in a group is necessary to form common interest [18]. In which, the shared interest because of disaster experience became the driving factor for LGUs to coordinate.

The Alliance of Seven (A7) was born out of necessity to coordinate [10]. The initiatives originated in the proposal to include LGUs linked by the Marikina watershed [19]. These LGUs are the cities of Marikina, Quezon City, and Pasig in Metro Manila, and Antipolo, the Municipalities of Cainta, San Mateo and Rodriguez in the province of Rizal. Further, expansion is being proposed to include the municipalities of Baras and Tanay in Rizal as part of collaboration and renaming it as Alliance of Nine. The concern LGUs were invited in a series of meetings spearheaded by the Marikina Mayor as the Lead Convenor. The objective is to build up cooperation among LGU for pooling and sharing of resources of those LGU affected by the disasters. Cooperation by the LGU can be done in sharing of capacities of LGU on neighbouring place needed support and assistance [19]. The Alliance of Seven and Protected Area Management Board (PAMB) tie the knot of brotherhood among and between neighboring cities especially in disaster risk reduction and management. The essence of collaborative governance is helping each other, building and strengthening the relationship and rapport among and between LGUs despite the limitation and some weaknesses. With the A7 and PAMB, the weaknesses of other members are capacitated through the collaboration realized to come-up better solution in a problem [20].

The Marikina River Basin flooding tested the DRR preparedness of LGUs and the partnership is form to reduce the disaster risk and mitigate disaster in relation to development of LGUs around the Marikina River Basin [21]. The inter-local collaboration in governing the common pool resources dreamt of sustainable cities and among the initial discussion in the plans and programs of the members agreeing into the collaborative governance are the

following: (1) LGUs must identify vulnerabilities, LGUs capacities, and need assessment. (2) Reforestation and rehabilitation of Marikina watershed. (3) Early warning system setting in respective places. (4) Resettlement of communities that are at risk especially those inside the Marikina river basin. In which as a result of relocation, livelihood and other necessity will be provided. Also, the original plan for resettlement program is to have an in city relocation. And, (5) the resources mobilization among the members and concerning LGUs.

Managing common pool resources for DRRM

The theory and design principles of enduring commons institutions by Elinor Ostrom is a guide how to effectively mobilize, formalize and harmonize the mechanism for collective action [13], [18], considering the different constraints given to the stakeholders concern like LGUs involved in managing common pool resources (Marikina Watershed and Marikina River) for disaster risk management and risk reduction. Among the broad wide recommendation are: (1). institutional arrangement in managing common pool resources, (2). reforestation of Marikina Watershed, (3). mobilization of fund for sustainability, and (4). sharing of Human Resource Capacity.

Institutional Arrangement in managing Common Pool Resources

The study of Common Property Institutions and Sustainable Governance of Resources opined that the effective governance can design institutional arrangement to help resource sustainability by means of self-management of resources in respective places [16]. The same in Marikina, the contribution of LGU for collaborative governance in managing common pool resources is through the programs implemented in the city like cleaning of drainage system, rehabilitation of pumping station and putting additional waterways and infrastructures for mitigation. The initiative is to mitigate the impacts of garbage's contributed into the deterioration of Marikina River and not to add additional burden to other LGUs equally affected by the pollutants. More so, Mr. Gary Carpio [20], Division Chief, Research and Planning, City Disaster Risk Reduction Management Office of Antipolo notion that collaborative governance in managing the common pool resources does not always mean that the programs and projects for DRRM necessarily cross bound in the other city. The ideas of in-city management of common pool resources indirectly affect other LGUs. For instance, the effective management of Marikina watershed in high areas like Antipolo can indirectly reduce the risk of flashfloods in cities lying in low areas like Pasig, Marikina, Cainta and Quezon City.

Edella Schaleger [12], attributed Ostrom's [13] common pool resources theory in regards to the spatial extent that is purportedly important in building a sense of common purpose. Thus, one of the highlight of partnership in managing common pool resources is when the Executive Conferences was held together with the Local Chief Executives to discuss some problem that overlap with other cities especially the territorial boundaries coincide in the Marikina Watershed and Marikina River. The collaboration also enhances and establishes rapport with other LGUs. Collaboration provides linkages among and between LGUs for coordination and communication during rainfalls, tropical storms and typhoons like the timely announcement on the status of rain fall since the rain gages are located in Rizal. Sharing of information are vital for the preparation of LGUs especially in low lying places for potential threats such as flooding.

Reforestation of Marikina Watershed

The impact of environmental degradation recognizes no territory and forging partnership are most likely to emerge to combat the effect [22], [23]. Marikina watershed is threatened by the deforestation brought by activities done by people living in the areas. In order to address the situation, tree planting are one of the programs being done. Especially planting of trees in highland places such as in Municipalities of Baras and Tanay to reduce flash floods arises from eroding forestry. Working together for reforestation of place bound in the areas or Rizal is primordial since it is the starting point of risk and vulnerabilities in disasters.

Marikina City for instance in coordination to the LGUs of Rizal and DENR conducted massive tree planting to help rehabilitate the Marikina Watershed. Marikina planted 7000 trees in 20000 hectares in Rodrigues, Rizal and 3500 of which survived after the Habagat. Re-planting is needed to be done and another 20000 hectares are requested by Marikina city to DENR inside the protected areas for tree planting efforts and Marikina LGU planted already 50000 Robusta coffee trees in the past two years. To secure the place, Marikina city hires care-takers. In total,

seven care takers are employed by Marikina with salary of 6500 monthly. The salaries given are come from Marikina Watershed Green Foundation [19].

Mobilization of fund for sustainability

The notion for the imbalances of power is hindrance in making the collaboration working [24], [26] especially when stakeholders do not have the capacity to share in terms of equal sharing of resources and funding. Some of the collaborative governance mechanism used in managing Marikina Watershed and River as common pool resources is how to mobilize funding and financing mechanism. The main constraint of collaborative governance is the sharing of budget resources due to limitation imposed by the law. Under the Local Government Code the financial resources of LGU can only be spend within the area of responsibilities, inside the city.

The Quezon City pointed that national intervention is significant in making the collaboration sustaining on managing common pool resource in Marikina Watershed and Marikina River since everyone are affected in its impact during the disasters. Recognizing the delimitation under the laws, in order for LGUs to share between and among LGUs, the national government is needed to come up with the scheme in order to mobilize the funds for inter-LGU resources financing. Inter-LGU sharing of resources is a challenge, considering that the Commission on Audit is very strict in regards to the spending program of government. Likewise, it is further suggested that national government or DILG must authorize the mobilization of funding for collaborative governance projects and programs governing the Marikina Watershed and Marikina River borrowing the principle used when the authority was given by National Governmen to Metro Manila LGUs to assist the LGUs affected by typhoon Yolanda in Mindanao.

Sharing of Human Resource Capacity

"CPR theory places emphasis, not on power, political conflict or legitimacy as shaping forces of institutions, but on voluntary (ex)change that is mutually agreed and beneficial, and that supports collective action" [24]. Wherein, collaborative governance in managing common pool resources strengthen the human resource capacity and organizational capabilities of LGUs handling disasters through sharing of knowledge (data and information), time and expertise of human resource capacity such as the experts, trainers and speakers, simulations and drills for disaster risk reduction. Sharing of best practices to fellow LGUs coincide in the Marikina River and Watershed is important. The inter-local coordination especially in the disaster mitigation expedites the saving of lives especially in the boundaries near or overlap with the other LGUs. Collaborative governance paved the way for prompt assistance extended especially the equipments needed for urgent disaster response together with the deployment of human resource personnel for rescue operation like tracks, radio, ambulance, and as necessity arises in the operation [20].

CONCLUSION

Managing common pool resources like Marikina Watershed and River for disaster risk reduction is very challenging given the situation and constraints narrated due to political, economical, societal, environmental and legal subdivision brought by the geographical and spatial boundary, local autonomy in Local Government Code, budget delimitation because of limited resources, and social given the economic and social condition of people involved in the areas of concern. Mancur Olson nested that people by nature will not act in common unless that individual interest is present [18]. In which, in this case, common interest play a major role for collaborative governance mechanism. The disaster experience brought by flooding and the impacts to property and lives became the 'common interest' for LGUs to collaborate. Under which the 'Ostrom's design principles of enduring commons institutions' [13] romanticized the idea and need for collective action by means of alliances that are formed after the disaster experience. Examples of collective action by Ostrom is the Alliance of Seven [5], [27], proposed to be alliance of Nine and the Protected Area Management Board (PAMB) governing common pool resource like Marikina Watershed and Marikina River. We can conclude that, collaborative governance is not impossible in governing common pool resources for disaster risk reduction and risk management. Hence, the challenge for the collaborative governance is how to make the action sustainable, efficient and long lasting given the constraints mention in this study.

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